

**Mental Health Intensive Case Management (MHICM)
in the Department of Veterans Affairs:
The Fifth National Performance Monitoring Report -
FY 2001**

FINAL DRAFT

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by

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Executive Summary

This is the fifth national report on the evaluation of the Department of Veterans Affairs Mental Health Intensive Case Management (MHICM) program, previously called “VA Intensive Psychiatric Community Care” or “IPCC”. MHICM is an innovative, experimentally validated approach to providing care for veterans with severe and persistent mental illness. Previous reports (Rosenheck et al., 1997; Neale et al., 1999, 2000, 2001) have demonstrated that: 1) assertive community treatment is a cost-effective approach to caring for veterans with serious mental illness who are high users of VA inpatient resources; 2) MHICM benefits are maintained over the long-term (2-5 years); and 3) MHICM can be implemented and monitored in VA settings nationally. This report, which presents developments and performance data for FY 2001, refers to early efforts and evaluations as “IPCC” and recent teams and data as “MHICM”.

The MHICM Program

VHA Directive 2000-034, issued on October 2, 2000, defined “Mental Health Intensive Case Management” and identified criteria for client entry, program operation and monitoring. MHICM teams seek to deliver high quality services that: 1) provide intensive, flexible community support; 2) improve health status (reduce psychiatric symptoms & substance abuse); 3) reduce psychiatric inpatient hospital use and dependency; 4) improve community adjustment, functioning, and quality of life; 5) enhance satisfaction with services; and 6) reduce treatment costs.

Extensive literature demonstrating that assertive community treatment teams (ACT) or intensive case management programs can improve clinical status and reduce psychiatric hospital use for people with serious mental illness has prompted researchers, practitioners and advocates to identify ACT as an essential evidence-based practice for this population (Drake et al., 2001, Phillips et al., 2001). MHICM teams modeled on ACT provide individualized services in the community for veterans with serious mental illness who are high users of VA mental health inpatient resources. MHICM services are organized around a core set of treatment elements described in VHA Directive 2000-034: 1) Intensity of contact; 2) Flexibility and community orientation; 3) Rehabilitation focus; and 4) Continuity and responsibility.

System-wide Dissemination

At the end of FY 2001, 55 MHICM teams were in operation and at least a dozen more teams were in development. As specified in VHA Directive 2000-034, MHICM team performance and outcomes are monitored by the Northeast Program Evaluation Center (NEPEC) within the VA Connecticut Healthcare System. Data are presented here for 3,189 veterans who received MHICM services between October 1, 2000 and September 30, 2001 and 48 teams that had 10 or more clients with follow-up interviews in that period. Of this group, 2,822 veterans (88.5%) had baseline interview data and 2,113 (66.3%) had follow-up interview data for FY 2001.

Client Characteristics

Overall, 90.7% of MHICM veterans had a diagnosis of psychotic illness at entry and they had spent an average of 96 days in the hospital in the year prior to program entry. Over half of all MHICM veterans (56.9%) had been hospitalized for *more than two years* in their lives, with over

two decades of illness since their first hospital stay (mean duration=23.0 years). A majority (56.9%) of MHICM clients received VA compensation for a service-connected disability, and nine in ten (94.1%) received some combination of VA and/or Social Security funds, with half (50.3%) indicating their funds were handled by a designated representative payee. This is clearly a group of veterans who are dealing with long-term illness and severe disability.

Service Delivery

Altogether 81.5% of MHICM veterans were seen weekly or more by MHICM team staff; 56.3% were seen for more than one hour per week over a six-month period, and 84.8% received the majority of their care in the community. MHICM clients had an average of 67 face-to-face contacts with MHICM staff during FY 2001, or 1.28 face-to-face visits per week, per veteran. A relatively small number of veterans (N=448 or 14.0% of 3,189) were discharged from the program during the year. On average, each currently participating veteran had received MHICM services for 1,065 days, almost 3 years, at the conclusion of the Fiscal Year.

Outcomes

Veterans treated by MHICM teams showed average reductions in psychiatric hospital days of 41.9 days (73.2%) during their first six months in the program. Similar reductions were achieved through 12, 18, and 24 month periods. Every team reduced hospital use. Analysis of symptom reports found statistically significant improvement of about 10% on a measure of observed symptoms (BPRS mean change = -3.89, $t=-10.20$, $p<0.0001$) and self-reported symptom severity scores (mean change = -0.20, $t=-12.63$, $p<0.0001$). Client reported housing independence increased by 14% (mean change = +0.41, $t=14.37$, $p<0.0001$) and quality of life improved by 10% (mean change = +2.65, $t=18.30$, $p<0.0001$) with MHICM treatment. MHICM veterans were significantly more satisfied with MHICM community-based services relative to standard VA mental health care (+20%; mean difference = +0.63, $t=20.79$, $p<0.0001$). This was reflected in significant improvement in satisfaction with overall VA mental health services at follow-up (+14%; mean change = +1.24, $t=19.63$, $p<0.0001$).

Conclusion

Development of MHICM in VA has followed a model sequence of problem identification, program development, evaluation, and dissemination (Rosenheck and Neale, 2001; Rosenheck, 2001). Careful implementation and sustained monitoring have resulted in effective community-based services for veterans with severe and persistent mental illness, a highly vulnerable and deserving population. Modeled on evidence-based, “best practice” programs in use elsewhere in the nation (Phillips et al., 2001), the MHICM program is a well-defined intervention that can be adapted to meet local needs. The program has been successfully disseminated to more than 50 VA medical centers and site-by-site monitoring data show that it continues to provide effective and efficient services to several thousand deserving veterans in great need. Review of team reports and outlier values supports continued monitoring of team resources and performance and attention to staff training needs. VHA Directive 2000-034 established clear guidelines for MHICM team operation that have been translated into a set of minimum standards and monitored to identify performance outliers. Only seven (15%) monitored MHICM teams met all eight minimum program standards in FY 2001 and adherence will be addressed with VA Central Office leadership during the coming year. A network planning initiative and quarterly circulation of monitoring data to network leaders, begun in FY 2001, may enhance the implementation and

performance of MHICM teams nationwide.

Acknowledgments

We dedicate this Fifth National Performance Monitoring Report to the thousands of veterans who have found new opportunities for recovery outside hospital walls and the hundreds of MHICM clinicians who have discovered new ways to provide help. MHICM case managers and veterans provide the information on which this series of reports is based.

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Table of Contents

	Page
Executive Summary.....	i
Acknowledgments.....	iii
Table of Contents.....	v
 Chapter 1. Mental Health Intensive Case Management in a Changing VA Healthcare System.....	 1
Changes in VA Mental Health Care.....	1
Accountability and Monitoring.....	2
Case Management and Assertive Community Treatment.....	2
ACT Replication and Research.....	3
VA Demonstration: MHI, IPCC.....	4
Program Objectives and Principles.....	4
Demonstration Findings and Performance Monitoring.....	5
MHICM Directive and Network Implementation.....	5
Team Development.....	6
References.....	7
 Chapter 2. National Assessment of MHICM Program.....	 13
VA Implementation of IPCC/MHICM.....	13
MHICM National Program Monitoring.....	14
Minimum Program Standards.....	16
Program Structure.....	17
Client Characteristics.....	19
Program Process (Service Delivery).....	21
Clinical Outcomes.....	23
Unit Costs and Outlier Review.....	27
Outlier Review.....	28
Adherence to Minimum Standards.....	29
Transition to Lower Intensity Case Management Services.....	29
Summary and Conclusions.....	30
References.....	31
 Tables:	
Table 2-1. VA MHICM Program Monitors.....	33
Table 2-2. MHICM Programs through FY 2000.....	34
Table 2-3. Allocated Staff and Funds (Original Dollars).....	35
Table 2-4. FY 2000 Program Expenditures.....	36
Table 2-5. Utilization of Staff Resources.....	37
Table 2-6. Clinical Staff and Caseload.....	38
Table 2-7. Demographic Characteristics of Veterans at Intake.....	39
Table 2-8. Entry Criteria Information.....	40

Tables (continued):

Table 2-9.	Receipt of Disability Compensation or Pension Income.....	41	
Table 2-10.	Entry Criteria Information by Site.....	42	
Table 2-11.	Clinical Status at Entry.....	43	
Table 2-12.	MHICM Program Tenure.....	44	
Table 2-13.	Pattern of Service Delivery.....	45	
Table 2-14.	Outpatient Clinic Visits.....	46	
Table 2-15.	Therapeutic Services.....	47	
Table 2-16.	Client-Rated Therapeutic Alliance.....	48	
Table 2-17.	Fidelity to Assertive Community Treatment Model.....	49	
Table 2-18.	VA Hospital Use: 183 Days Before and After Program Entry	50	
Table 2-18a.	VA Hospital Use: 365 Days Before and After Program Entry	51	
Table 2-18b.	VA Hospital Use: 548 Days Before and After Program Entry	52	
Table 2-18c.	VA Hospital Use: 730 Days Before and After Program Entry	53	
Table 2-19.	Brief Psychiatric Rating Scale.....	54	
Table 2-20.	Symptom Severity.....	55	
Table 2-21.	Global Assessment of Functioning.....	56	
Table 2-22.	Instrumental Activities of Daily Living.....	57	
Table 2-23.	Quality of Life.....	58	
Table 2-23a.	Housing Independence.....	59	
Table 2-24.	VA Mental Health Service Satisfaction.....	60	
Table 2-25.	Satisfaction with VA MHICM Services.....	61	
Table 2-26.	MHICM Unit Costs (Based on FY 2001 Expenditures).....	62	
Table 2-27.	Site Performance on MHICM Critical Monitors.....	63	
Table 2-28.	Outliers for Team Structure Monitors.....	64	
Table 2-29.	Outliers for Client Characteristics Monitors.....	65	
Table 2-30.	Outliers for Clinical Process Monitors.....		66
Table 2-31.	Outliers for Client Outcomes Monitors.....	67	
Table 2-32.	Outliers for Minimum Standards.....	68	
Table 2-33.	Site Outlier Review Summary.....	69	

Figures:

Figure 2-1.	Distance: MHICM Offices to Veteran Residence.....	70
Figure 2-2.	Travel Time: MHICM Offices to Veteran Residence.....	70
Figure 2-3.	Violent Behavior, Criminal Justice Involvement.....	71
Figure 2-4.	Suicidal Behavior, Hospitalization.....	71
Figure 2-5.	Housing Independence.....	72
Figure 2-6.	Work and Rehabilitation Activity.....	72

Appendices:

Appendix A.	VHA Directive 2000-034 (“MHICM Directive”).....	73
Appendix B.	MHICM Planning Material & Checklists.....	83
Appendix C.	Outlier Review Request and Form.....	107
Appendix D.	Legend for MHICM Performance Report Tables.....	111
Appendix E.	Case Management Visits for MHICM Veterans.....	121
Appendix F.	Case Management Visits for Non-MHICM Veterans.....	123

Chapter One: Mental Health Intensive Case Management in a Changing VA Health Care System

Changes in VA Mental Health Care

The closing decade of the twentieth century confronted the Department of Veterans Affairs (VA) and other public mental health care systems with the significant challenge of providing appropriate, humane, and efficient care to persons with serious mental illness. Despite closure of 40,000 psychiatric hospital beds between 1957 and 1988, VA relied heavily on inpatient treatment through the 1990's, spending over 70% of its mental health budget on costly hospital care as recently as FY 1996 (Rosenheck, 1997).

In 1995, the Veterans Health Administration (VHA) began a fundamental reorganization of its structure and services in pursuit of a more comprehensive, integrated healthcare system, with enhanced priorities of customer satisfaction, cost efficiency, and accountability. Manifestations of change have included the introduction of data-based approaches to care and management, decentralization of VA administrative and budget authority to 22 veterans integrated service networks (VISNs), reallocation of healthcare resources, and a shift of focus from inpatient to outpatient modes of service delivery.

In mental health, organizational changes have prompted dramatic reductions in inpatient service use. Between Fiscal Years 1994 and 2001, lengths of stay in general psychiatry inpatient programs declined by 45% (from 31 to 17 days), and 5,860 general psychiatry beds (61% of the 1994 total) were closed. These included 1,417 (76%) of 1,862 long-stay beds (those occupied for more than 1 year) (Rosenheck and Greenberg, 2002). In FY 2001 alone, 289 general psychiatry beds (7% of the FY 2000 total), including 273 long-stay beds (38%), were closed. The effect of these changes has been offset, to some degree, by expansion of outpatient and residential rehabilitation services. Between FY 1995 and 2001, the number of veterans receiving outpatient mental health services increased by 152,771 (27.7%) and the number of clinical contacts per treated veteran rose from 12.8 to 13.9 (8.6%). For the same period, mental health expenditures increased slightly (\$4.9M or 0.2%) but fell from 15.6% to 12.2% as a percentage of all VA clinical costs (Rosenheck, 1996; Rosenheck and Greenberg, 2002). It is still unclear, however, what level of outpatient services is adequate for treatment and rehabilitation of veterans with the most severely disabling mental illnesses.

The shift from inpatient to outpatient mental health care in VA would be expected to have its greatest impact on those with the most severely disabling mental illnesses, veterans who have traditionally relied on hospital treatment, especially long-term hospital treatment -- veterans who perhaps can least tolerate rapid change. People with serious mental illness are among the "least well off" (Rosenheck et al., 1998) and most vulnerable, commonly falling prey to homelessness, substance abuse, profound social isolation, and vocational dysfunction (Grob, 1994). Ethicists (Callahan, 1995; Boyle, 1995) and services researchers (Rosenheck, 1999; Schlesinger, 1995;

Schlesinger and Mechanic, 1993) have emphasized that core values in our society urge us not to neglect the most vulnerable citizens, and to recognize that their vulnerability earns them special claim on public resources. Such ethical and societal goals warrant careful attention to developing and monitoring of quality mental health services, particularly for the most needy veterans.

Accountability and Monitoring

VA healthcare increasingly emphasizes value, customer service, and accountability and provides specific impetus for implementation and careful monitoring of community-based care (Kizer, 1998). VA values clearly underscore the need for alternatives to inpatient hospitalization and enhanced attention to accountability and customer satisfaction. The Veterans Eligibility Reform Act of 1996 (Public Law 104-262, Section 104), furthermore, committed VA to maintain its capacity to provide specialized services for the most vulnerable veterans and mandates review of leadership reports on capacity by the VA Under Secretary for Health's Special Committee for the Care of Severely Chronically Mentally Ill Veterans (the "SMI Committee"). In 1999, the Under Secretary approved a recommendation by the SMI Committee to make intensive case management programs such as IPCC more widely available for veterans with serious mental illness (Recommendation 3, SMI Committee, 1999). In 2000, his successor issued a directive (VHA 2000-034) that defined "Mental Health Intensive Case Management" services for veterans with serious mental illnesses.

Case Management and Assertive Community Treatment (ACT)

For several decades, mental health clinicians and researchers, dismayed by the adverse consequences of precipitous State Hospital closures during the 1960's and 1970's, have sought to develop humane, health-promoting alternatives to long term hospital care for severely mentally ill persons in community settings. Case management services have emerged as a widely preferred alternative to fragmented outpatient care. In this approach, a specialist takes responsibility for facilitating access to and coordinating delivery of the full range of services needed by people with severe mental illness. General, or broker model, case management has been used for a variety of purposes ranging from cost cutting to improving clinical outcomes, and has only limited research support for its effectiveness. **Assertive community treatment (ACT)**, a model of integrated, intensive, and comprehensive services provided by a team of skilled clinical case managers in community settings, offers a more supportive approach for individuals with serious mental illness that has been carefully developed and evaluated.

ACT was first implemented as the Program of Assertive Community Treatment (PACT) in Madison, Wisconsin over 25 years ago and evaluated in a series of experimental studies (Marx et al, 1973; Stein et al., 1975; Stein and Test, 1980a, 1980b; Weisbrod et al., 1980). ACT clinicians meet their clients in the community and provide comprehensive services, including social support, skills training, and medical care, wherever and whenever they are most needed (Allness and Knoedler, 1998; Stein and Santos, 1998). A team of up to 15 case managers provides a virtual "hospital without walls" replacing the custodial functions of an institution with personal support and therapeutic skills training in natural settings.¹

¹ A typical PACT team is staffed with a multi-disciplinary group of 10-15 clinicians who are configured to

ACT Replication and Research

In the early 1980's, the success of the Madison PACT studies began to influence public policy. Wisconsin shifted inpatient treatment funds toward community-based services and Michigan funded Harbinger, the first replication of the PACT experiment (Mowbray et al., 1997; Mulder, 1985). By 1987, ACT principles had been adapted in demonstrations by numerous municipal and state mental health care systems, including Chicago, Philadelphia, Ohio, and New York (Test, 1992; Olfson, 1990; Burns and Santos, 1995; Deci et al., 1995). Replications varied with respect to the breadth and intensity of services, the accessibility and training of staff, and their effectiveness (Olfson, 1990; Stein, 1990; Deci et al., 1995; Essock and Kontos, 1995). Over the next ten years, at least 14 states developed ACT initiatives (Allness et al., 1997; Meisler, 1997). Rhode Island, Delaware and Texas established ACT as a standard "best practice" and required state-funded providers of services for the seriously mentally ill to develop ACT team services for their most troubled clients. In 1998, the Schizophrenia Patient Outcomes Research Team (PORT) highlighted ACT's effectiveness and relatively limited dissemination in its findings (Lehman et al., 1998). A year later, the National Alliance for the Mentally Ill (NAMI) made state funding for ACT services a central element of its anti-stigma advocacy campaign (NAMI, 1999). By 2001, most states reported the presence of an ACT team or active legislative/lobbying effort, with some (e.g., Florida, Virginia) funding multi-site state ACT initiatives (NAMI, 2002; <http://www.nami.org/about/pact.htm>). Outside the United States, ACT has been adopted in Canada, Europe and around the world (Burns et al., 2001). Recent comparison of VA and non-VA treatments for schizophrenia found that VA clients were less likely to receive case management services (Rosenheck et al., 2001).

Experimental studies published over 20 years have reported that concentrating treatment resources in community-based ACT teams or intensive case management programs can result in improved clinical status of severely mentally ill patients at no additional cost (Bond et al., 1989; Hoult et al., 1984; Mulder, 1985; Stein and Test, 1980; Wasylenki et al., 1985; Weisbrod, Stein and Test, 1980). Other studies, however, have found case management to be associated with no clinical change and/or increased service utilization and cost (Bond et al., 1991; Curtis et al., 1992; Drake et al., 1998; Essock et al., 1998; Franklin et al., 1987; McFarlane et al., 1992). Literature reviews have concluded that intensive community treatment frequently reduces hospital use but does not always achieve net cost-savings or clinical improvement (Burns and Santos, 1995; Mueser, 1998; Olfson, 1992; Scott and Dixon, 1995). Most recent reviews have identified assertive community treatment as a clinically effective "evidence-based practice" when implemented correctly which can be cost-effective for clients who are high users of inpatient services (Marshall and Lockwood, 2002; Phillips et al., 2001). A Cochrane Review concluded that ACT clients were more likely to stay in treatment and out of the hospital, to live more independently, and to be more satisfied with their care than clients who received standard community or case management services (Marshall and Lockwood, 2002).

provide a comprehensive array of clinical and rehabilitation services every day (including evenings, weekends, holidays) and ensure 24 hour per day access for needed crisis intervention (Allness and Knoedler, 1998). A typical ACT team has 5-8 clinicians who, by necessity, provide less comprehensive services for fewer hours per week and rely on emergency/admitting staff or others to consult them about off-hour crises.

VA Demonstration: MHI, IPCC

VA initiated a demonstration program of intensive case management teams based on ACT principles at ten northeastern VA medical centers in 1987. Originally a regional demonstration (the Region 1 Mental Health Initiatives or MHI), VA's adaptation of assertive community treatment became known as Intensive Psychiatric Community Care (IPCC). A rigorous experimental study of this effort demonstrated the cost-effectiveness of this type of program in VA (Rosenheck et al., 1995; Rosenheck and Neale, 1998a). The IPCC model, while developed for the most troubled, high hospital users, was based on flexible operation guidelines that may be applicable, with modifications, to other patient populations. Studies have shown that effective program performance requires adherence to the treatment model supported by training and performance monitoring (Rosenheck and Neale, 2001).

Program Objectives and Principles

IPCC services are delivered by integrated, multidisciplinary teams and are based on the Substance Abuse Mental Health Services Administration (SAMHSA) ACT standards. IPCC teams seek to deliver high quality services that:

- provide intensive, flexible community support;
- improve health status (reduce psychiatric symptoms & substance abuse);
- reduce psychiatric inpatient hospital use and dependency;
- improve community adjustment, functioning, and quality of life;
- enhance satisfaction with services; and
- reduce treatment costs.

To accomplish these objectives, IPCC teams adhere to four core treatment elements, most recently outlined in VHA Directive 2000-034:

- Intensity of Contact. High intensity of care primarily through home and community visits, with low caseloads (seven to fifteen veterans per clinician), allowing rapid attention to crisis and development of community living skills to prevent crisis in this exceptionally vulnerable population.
- Flexibility and Community Orientation. Flexibility and community orientation with most services provided in community settings and involving integration with natural support systems whenever possible (e.g., family members, landlords, employer).
- Rehabilitation Focus. Focus on rehabilitation through practical problem solving, crisis resolution, adaptive skill building, and transition to self-care and independent living where possible.
- Continuity and Responsibility. Identification of the team as a "fixed point of clinical responsibility" providing continuity of care for each veteran,

wherever the veteran happens to be, for at least one year, with subsequent care subject to review of continuing need for intensive services.

Demonstration Findings

Analysis of data from the original multi-site MHI demonstration project yielded evidence that assertive community treatment principles could be adapted successfully within the VA healthcare system, that community-based treatment approaches could be effective in reducing hospital use and costs and improving clinical status, and that positive outcomes could be sustained or enhanced over extended time periods. Two-year demonstration findings (Rosenheck and Neale, 1998a) confirmed previous experimental research by showing significant reductions in hospital use and costs, and improvements in psychiatric status and social functioning, for veterans receiving IPCC services (Burns and Santos, 1995; Olsson, 1989; Scott and Dixon, 1995). Overall, average health care costs were \$4,860 (13%) less per patient per year for those treated in IPCC. The demonstration also illustrated the value of program monitoring that addresses facility and client characteristics, administrative mission and support, and model fidelity, all of which can substantially influence program development and impact (Rosenheck and Neale, 1998b; 2001).

Program Performance Monitoring

The resource intensity of IPCC services and the program's novelty for VA have warranted collection of data on client status, service delivery and utilization, and clinical and cost outcomes, through a national monitoring and evaluation system developed and managed by VA's Northeast Program Evaluation Center (NEPEC). Integration and feedback of national data have reinforced program accountability and maintained performance standards that have been shown in the scientific literature to be essential to program effectiveness.

The 1997 IPCC Report: 1) reviewed findings from a two-year experimental design evaluation of IPCC in VA; 2) presented extended follow-up data addressing long-term clinical and cost impact on a subset of patients whose progress was followed for up to five years; 3) described a novel training and performance monitoring program developed at the Northeast Program Evaluation Center (NEPEC) for dissemination of this model; and 4) summarized initial performance data from the program's national dissemination through March 31, 1997 (Rosenheck et al., 1997). The second IPCC Report summarized program developments and performance data for veterans treated by 41 IPCC teams through Fiscal Year 1998 (Neale et al., 1999). The third report summarized performance monitors for veterans treated at 44 sites during FY 1999 (Neale et al., 2000). The fourth report summarized the performance of 46 teams during FY 2000 (Neale et al., 2001). The present (fifth) report summarizes performance monitors and outliers for 3,189 veterans treated by 48 teams during FY 2001.

MHICM Directive and Network Implementation Plans

On October 2, 2000, VHA Directive 2000-034 (enclosed as **Appendix A**) described a new initiative to establish **Mental Health Intensive Case Management (MHICM)** teams throughout VHA, based on the established evidence-based practice of Assertive Community

Treatment (ACT) (Phillips et al, 2001). IPCC, ACT, and other intensive case management services that met standards of service intensity and access were renamed as **MHICM**. The Directive defined the target population, standards and monitoring procedures for MHICM services. Shortly thereafter, VHA headquarters initiated a process through which each VISN would submit a detailed plan evaluating the need for MHICM in their network and describing specific steps to implement appropriate services. This initiative was the result of recommendations made by the Under Secretary for Health's Special Committee on the Treatment of Severely Mentally Ill Veterans (known as the SMI Special Committee) to assure appropriate community care would be available for veterans in the face of substantially reduced inpatient capacity. When many of the initial network plans lacked sufficient detail, the request was reissued with additional guidance and specific response templates, with responses due at the end of September 2001.

Team Development

In 1997, a number of VA facilities and Veterans Integrated Service Networks (VISN) began to express interest in implementing MHICM teams for veterans with serious mental illness or with co-occurring mental illness and substance abuse disorders. Where feasible, NEPEC staff provided assistance in the form of information, material, linkage and technical support for sites with various levels of commitment to implementation of the model. To assist local leaders with planning and decision-making about community-based intensive case management services, NEPEC developed **an Implementation Planning Packet** in 1999. The packet contained descriptive materials and literature about the MHICM program, a brief bibliography, an outline of minimum program standards and expectations, and implementation/fidelity checklists addressing essential elements of MHICM and assertive community treatment. It is useful for planning a new MHICM team or comparing the structure of an existing case management team to the model. A copy of this material, included as **Appendix B** in this report, is available with MHICM monitoring forms at the NEPEC web page on the VA intranet (<http://vawww.nepec.mentalhealth.med.va.gov>).

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Chapter Two:

National Assessment of MHICM Program Performance

VA Implementation of IPCC/MHICM

In 1993, responding to Congressional hearings and requests to enhance the priority of care for seriously mentally ill veterans within VA, the Director of Mental Health and Behavioral Sciences Service (Paul Errera, M.D.) submitted a "National Initiative for Seriously Mentally Ill Veterans" that featured the dissemination of Intensive Psychiatric Community Care (IPCC) programs. The VA National Planning Board approved the plan and Acting Under Secretary for Health agreed to provide \$1.5 million in FY 1994 and \$10 million in FY 1995 to establish new IPCC programs. The initial plan included additional funds for FY 1996 and FY 1997. All VA Medical Centers and freestanding Outpatient Clinics were eligible to apply for IPCC funds. Selection of new IPCC program sites involved several levels of review.

Between 1993 and 1995, IPCC teams were implemented at 30 additional sites around the country using national funds, with one quarter of available resources allocated to each of the four existing regions. On the basis of detailed implementation and outcome data from the original MHI demonstration, a standard resource package was designed to support operation of IPCC teams. This package consisted of \$325,000 for 6.25 FTE; \$15,000 in All Other funds; and \$30,000 (10% of personnel) for medical center administrative costs, for a total of \$370,000 recurring. Seventeen sites were awarded the standard package and six sites were funded at lower levels (3.5 FTE; \$200,000 PS; \$15,000 AO; \$20,000 OH) due to lower number of eligible veterans or rural location.

In support of the national dissemination, IPCC teams at Brockton, Canandaigua, Montrose and West Haven each received 1.0 FTE to allow experienced staff to act as mentor-monitors for 6-8 new IPCC teams. Over a two-year period, mentor-monitor teams participated in various planning and training activities, including: a 2-day planning meeting; weekly conference calls; four orientation and training sessions with clusters of teams; site visits; and ongoing formal and informal communications via mail, e-mail, fax, and telephone. Staff from each new program site attended a 1½ day orientation and training session with NEPEC staff, mentor-monitors, and other new programs, then accompanied mentor-monitor staff to their home facility for several days of direct observation and training. Calls were held weekly or biweekly for 6-12 months and then tapered depending upon team status. All new teams maintained formal contact with their mentor-monitors for at least one year after orientation and training.

In addition to regular contacts with new program sites, mentor-monitors reviewed each team's progress via planning conference calls with NEPEC staff and other mentor-monitors (weekly: July 1994 to June 1996; quarterly: July 1996 to September 1997). Mentor-monitors also completed implementation checklists at six months and one year, reviewing with each team details of its configuration and operation. Finally, staff from each mentor-monitor team conducted at least one site visit of a FY 1994 program after nine to twelve months of operation.

Site visits enabled mentor-monitors to observe the team when it was fully operational and to help the team resolve implementation difficulties.

Recent Implementation

In 1997, as VHA decentralized management and resources, individual facilities and Veterans Integrated Service Networks (VISNs) began to request NEPEC consultation, training and technical assistance to implement IPCC teams. In subsequent years, teams were started with local resources in Detroit (MI), Central Iowa, Milwaukee (WI), St. Cloud (MN), Lyons (NJ) and the Rocky Mountain Network (VISN 19), and with network resources in VA Healthcare System of Ohio (VISN 10) and the South Central VA Healthcare Network (VISN 16). Many other sites requested information or consultation, and some facilities implemented mental health case management teams that varied in structure and intensity of services without NEPEC assistance. VHA Directive 2000-034 prompted additional requests for consultation and training, and a network planning process described in Chapter One.

In FY 2000, monitoring of the IPCC team at the Bronx was discontinued after consultation revealed the program no longer operated within MHICM standards. Members of the Bronx IPCC team were reassigned to more traditional clinical and case management services. Monitoring data for the Waco (Central Texas) team were incomplete and excluded from this report. IPCC teams at Mountain Home, Salisbury, and Spokane were merged with other programs, substantially reducing staff resources and caseloads, and affecting program fidelity and outcomes. More recently, efforts have been made to rejuvenate clinical or monitoring operations by the Spokane, Salisbury, and Waco teams.

MHICM National Program Monitoring

National monitoring of MHICM program performance, as specified in VHA Directive 2000-034, relies on multiple sources: client interviews, clinician and program progress reports, and centralized VA databases. Sources of data include: (1) Monthly FTE / Caseload reports monitoring program productivity, workload, staff turnover, and admissions; (2) Structured clinical interviews with each veteran at entry (Initial Data Form-IDF) and semi-annually thereafter (Follow-up Data Form-FDF) addressing client characteristics, clinical status, functioning, and service use; (3) Semi-annual clinical progress reports of IPCC services and outcomes, completed by the veteran's primary case manager; (4) VA automated inpatient and outpatient service use data; (5) ACT Fidelity assessments of program conformity with MHICM and ACT program guidelines; and (6) Staffing and budget summaries completed as part of an annual program progress report. Evaluation forms have been abbreviated to reduce paperwork demands.

MHICM program evaluation and monitoring variables target four domains following the classic formulation of Donabedian (1980): 1) **Program structure**: utilization and configuration of allocated resources, and caseload levels; 2) **Client characteristics**: socio-demographic, disability level, and clinical status at entry; 3) **Program Process**: pattern of service delivery, therapeutic activities and alliance, and readmissions; and 4) **Outcomes**: client use of hospital services, symptoms, functioning, quality of life, and satisfaction with services. The following section of

the report presents data on each monitoring domain, from client interviews, clinician progress reports, and automated databases, for veterans with a follow-up interview completed between October 1, 1999 and September 30, 2000. **Table 2-1** lists 47 current MHICM program monitors, indicating for each its relevant domain and program objective, the table in which its data are presented in this report, and whether it is a “critical” program monitor (see below). Monitoring data are summarized in 33 tables and 6 figures. **Appendix D** summarizes the source and creation of all variables included in performance monitoring tables for this report. All MHICM teams participate in the national performance monitoring system presented in this report, including the use of specific DSS identifiers (#552 and #546) for clinical workload. Programs providing less intensive case management services are not monitored but workload is reported under DSS identifier #564. Halfway through FY 2001, VHA revised the Veterans Equitable Resource Allocation (VERA) reimbursement structure by adding veterans with 41 or more MHICM visits in a year to those for whom networks received higher reimbursement.

Monitoring Team Performance

Premises on Which the Monitoring System is Based. MHICM care is still a relatively new clinical activity in VA, requiring considerable freedom for clinical innovation. Monitoring efforts are based on the assumption that rigid regulations or performance standards are not appropriate for this program in its current stage of development. Premature standardization might stifle the creative evolution of this new modality and fail to account for local variation. At the same time, since both VA and non-VA studies show that poor implementation is associated with low cost-effectiveness (Rosenheck and Neale, 1998b; Mueser et al., 1998; Phillips et al., 2001), it is important to monitor the program as completely and objectively as possible and to identify performance standards where they are suggested by research findings. Through this monitoring system we have sought to assemble a body of data that can guide national and network program developers and front line clinicians, as they implement MHICM teams over the coming years.

Critical Monitors: Statistical Norms vs. Practice Standards. Although a complete set of absolute practice standards has not been established for this program, monitoring data allow more than a description of the performance of individual sites and statistical norms have been computed for selected critical monitors. The distinction between statistical norms and formal practice standards is an important one. Practice standards are established by a consensus of professionals and represent directive guidelines for appropriate clinical practice. They codify how health care should be conducted. Statistical norms, in contrast, reflect how health care is practiced on average without specifying exactly what is and what is not acceptable practice. Although some practice standards have been established for the MHICM program through VHA Directive 2000-034, many aspects of the program have yet to be quantitatively standardized. Even in these areas, however, practice variation within the MHICM program can be measured and statistical outliers can be identified. Identification of statistical outliers must not be confused with the identification of practice standard violations. Statistical outliers are extremes on a continuum and, as such, deserve attention. However, without further exploration of specific circumstances, conclusions cannot be drawn regarding their exact meaning for program performance at a particular site.

FY 2001 Critical monitors. Nineteen of forty-seven current MHICM measures identified in Table 2-1 were selected as critical monitors that assess aspects of the program of special importance to fulfilling its mission². Most of these monitors have clear directionality (i.e. extremely large or small values suggesting a departure from program values and goals). Again, performance monitors should not be considered in isolation as absolute indicators of the quality of care delivered at any site. In most cases they can be used to properly identify statistical outliers, the importance of which must be determined by follow-up discussions or visits with the sites.

Identification of Statistical Outlier Sites. For each monitor, the data from each site are presented in tabular form. At the bottom of the column, the average value across all veterans and the average value for all sites are presented, along with the standard deviation for all sites. In the original report, sites were identified as outliers on a variable if the site value was more than one standard deviation from the mean.

Beginning with the Second Performance Report, outliers were identified by a more complex statistical procedure involving risk adjustment for differences in baseline characteristics of veterans across sites as well as differences in sample size. First, simple change scores were created for each variable by subtracting Pre- (entry or baseline) values from Post- (latest follow-up) values, and computing site means. Second, baseline covariates were standardized with a mean of zero by subtracting the mean from individual values and computing transformed means. Third, analyses of covariance were run for each outcome variable, with 13 baseline covariates and 2 time-in-program variables. Least-squares means adjusted for covariates were computed for each site and t-tests were run comparing the adjusted means from each site with the median site value. Sites that were statistically different from the median site (p value <0.05) in the undesired direction were identified in Tables 2-6 to 2-25 with a bold outlined value. The performance of these sites is significantly different from the median site after adjusting for differences in veteran characteristics at entry and duration of program involvement. Sites that differed significantly from the median in the desired direction were identified with a bold underlined value.

It is important to note for this report that outliers on critical monitors are being identified on a purely statistical basis. Unlike previous use of standard deviations to identify outliers, the statistical procedure accounts for site and other differences at baseline, for baseline values of the variable in question, and for the length of time that veterans are in the program. It is a more rigorous and conservative approach. For variables where all site values are close together, no outlier may be identified. For variables where site values are skewed, outliers may be identified in one direction but not the other. For variables where site values are normally distributed, a balanced number of outliers may occur in both directions using values adjusted for baseline characteristics, baseline values, and total time in program

Minimum Program Standards

²Two monitors from the 1997 Report were dropped from national monitoring when the Readmission Review Form was made optional as part of paperwork reduction effective January 1, 1998. Client symptom and functioning monitors (each comprised of two measures) were separated, with no net change in monitors.

VHA Directive 2000-034 establishes procedural guidelines for MHICM teams that have been operationalized in eight **minimum program standards**. These complement the critical performance monitors. Minimum standards and threshold values include:

- Percent of veterans with psychotic diagnosis at entry (50% or more)
- Percent of veterans with 30 or more psychiatric inpatient days in year before entry (50% or more)
- Mean adjusted face-to-face contacts per week/veteran (1.0 or more)
- Ratio of veterans to clinical FTEE (mean caseload) (7:1 to 15:1)
- Percent of veterans for whom at least 60% of contacts occur in community setting (50% or more)
- Percent of veterans receiving psychiatric rehabilitation or skills training services (25% or more)
- Percent of veterans discharged from MHICM program (< 20%)
- Number of clinical service providers on the team (4.0+ FTEE).

Summary of Outliers. **Tables 2-27** summarizes the number of Critical Monitor outlier values identified for each site in the four major evaluation domains: program structure, client characteristics, program process and outcome. Critical Monitor outlier values are presented separately by domain in **Tables 2-28 to 2-31**. Outliers for the Minimum Program Standards are presented in **Table 2-32**. Data have been made available to sites for their review and consideration, and discussed on national conference calls. NEPEC staff have followed up with individual sites concerning specific outlier variables, and these discussions will continue as program evaluation and planning progress during the coming year.

Team Outlier Review. Prior to publication of this report, MHICM teams were asked to review draft tables and comment on critical monitors where their team value was identified as an outlier in the undesired direction. To facilitate review and comment, draft tables were posted on an intranet web site for direct access by MHICM teams. Outlier review responses are summarized in **Table 2-33**. The outlier review request and form are included in **Appendix C**.

Program Structure

MHICM Sites, Resources, and Expenditures

Forty-eight MHICM teams that were in operation during FY 2001 and provided follow-up data on ten or more clients are listed in **Table 2-2**, and characterized by Site Type and Cohort (year of program start-up). Two established teams (Mountain Home, Waco) and five developing teams (Biloxi, Lyons, Milwaukee, St. Cloud, Youngstown) had insufficient data to be included in this report. The original MHI demonstration programs (Cohort 1) began in 1987. Teams at Chicago (West Side), Miami, and Portland, initiated in 1992 and grouped in Cohort 2, were funded primarily by reallocating resources from three original IPCC teams that were discontinued for incomplete implementation of the program model. Dissemination sites were funded in 1994 (Cohort 3) and 1995 (Cohort 4), as part of VA's National Initiative for Veterans with Serious Mental Illness. Four orientation and training sessions were conducted with thirty dissemination

sites between August 1994 and July 1995. Miami staff attended the first orientation and training session with Cohort 3.

With decentralization of VA resources to 22 Veterans Integrated Service Networks in 1996, individual facilities and networks became the locus for funding and implementing new IPCC teams. The first locally funded and nationally monitored IPCC team was initiated by the John D. Dingle VA Medical Center in Detroit, Michigan in 1997. Additional teams were started using network resources by the Healthcare System of Ohio (VISN 10) (1998) and the South Central Healthcare Network (VISN 16) (2001), and using local resources by the Central Iowa Healthcare System (1999) and the Rocky Mountain Network (VISN 19) (2000). In each case, the MHICM Project Director and NEPEC evaluation staff collaborated with an established MHICM team to provide orientation, training, and ongoing technical assistance for new team members during the first year of start-up. Accessible mentor-monitor teams were assigned to observe team operation and service delivery, and consult on clinical and administrative questions. Regular conference calls were held with members of new teams to support network communication about MHICM and community service needs of veterans with serious mental illness.

VHA policy in recent years has sought to diminish historical differences between General Medicine and Surgery (GM&S) and former Neuro-Psychiatry (NP) facilities. To illustrate the influence of facility type on the client population and therapeutic emphasis of individual MHICM teams, we continue to compare client characteristics for the two facility groups. Although the proportion of teams located at NP sites has changed little since the original study (3 of 10 or 30% versus 16 of 48 or 33% in FY 2001), the proportion of total veterans at NP sites has continued to grow, from 40% (183 of 454) to 47% (1,503 of 3,189) in FY 2001, reflecting greater numbers of veterans who meet MHICM criteria at NP sites.

Initial resource allocations to current MHICM sites are enumerated in **Table 2-3**. Resources for Cohorts 1 and 2 are presented in 1988 and 1993 dollars, respectively, and exclude funds for local administrative support as none were provided until 1994. Cohort 1 programs involved more diverse treatment models and staffing configurations. Original site resources reported in annual progress reports bring the total funds for MHICM programs in the most recent fiscal year (2001) to almost \$16M, with 87% of funds going to cover personnel costs, and the remainder going to All Other expenses.³

MHICM program expenditures for FY 2001, derived from site-generated annual progress reports, are summarized in **Table 2-4**. These data appear to accurately reflect expenditures for program staffing and operation at most sites during that period, although it was not possible to verify program funds recently merged with those of other services in mental health service line consolidations. Nationally, MHICM program expenditures accounted for \$18.4M during FY 2001, with \$17.5M (95%) expended as Personal Service funds for 251.4 FTEE. This amounted to an average cost of \$69,600 (salary plus benefits) per filled position.

³ In recognition of administrative costs associated with support for an IPCC team, each dissemination site received an increment of 10%, based on Personal Service dollars, for unmonitored administrative use.

Table 2-5 presents the assignment and utilization of staff resources through FY 2001. Fully one half (24 of 48) of the teams included in this report had fewer than 4.0 clinical FTEE providing clinical services in the community as mandated by VHA Directive 2000-034. Although most MHICM positions (approximately 87%) were filled, 20 sites (42%) had at least one vacancy of more than 6 months as of September 30, 2001. Thirteen of nineteen teams (68%) with extended vacancies in FY 2000, and ten of twenty-six teams (38%) with extended vacancies in FY 1999, still had unfilled positions at the end of FY 2001, indicative of enduring staff losses. In addition, MHICM staff at twelve sites (25%) had been detailed without replacement for more than six months to other units. On the positive side, a number of MHICM teams benefited from local and network contributions of additional staff resources.

Four of five staff in filled MHICM positions (251 of 289 FTEE or 87%) provided direct clinical services, primarily in community settings. This figure included team leaders, who were expected to provide a reduced level of community services, but excluded psychiatrists (about 10 FTEE), who generally devoted less than one day per week to MHICM veterans and rarely provided services in the community, and administrative-clerical support staff.

Caseload Levels

Clinical staffing levels and caseloads attained by each program for FY 2001 are shown in **Table 2-6**. Medical Support refers to the active involvement of psychiatrists and nurses as part of a multidisciplinary team. Most teams maintained the direct involvement of a psychiatrist and a nurse on the team. Clinical staffing levels varied considerably across sites, from less than 2.0 FTE at Columbus, San Francisco and Spokane to 8.0 or more FTE at Bedford and Canandaigua (including locally contributed resources). Caseload levels also varied among sites, with sixteen teams (33%) managing caseloads **above** the specified maximum level of 15 per clinical FTE as of September 30, 2001. Several teams maintained lower caseload levels or waiting lists to preserve the intensity of their services in the face of persistently unfilled clinical positions.

Client Characteristics

Demographics and Entry Criteria

Socio-demographic characteristics for MHICM veterans through FY 2001 are presented in **Table 2-7**, for all sites combined (Overall) and by Site Type (GM&S, NP). Current data are comparable to those reported in the original two-year MHI study (Rosenheck and Neale, 1998a; Rosenheck et al., 1995), but with greater proportions of female and Hispanic veterans, and older veterans (age mean: 50 years; median: 49 years) in the current group. One in five veterans (19%) reported exposure to combat. Few (12%) reported paid employment in the three years preceding program entry. Site Type differences are also consistent with those reported in the original multi-site study, with veterans from former Neuro-Psychiatric facilities more likely to be older and somewhat more disabled.

Tables 2-8 and 2-9 present Overall, Site Type, and Site data characterizing MHICM veterans at entry. Sites varied in their definition and implementation of MHICM entry criteria. FY 2001 national MHICM program standards called for each veteran to meet the following

criteria: 1) primary psychiatric diagnosis, especially a psychotic disorder; and 2) 30 or more days OR 3 or more stays of VA psychiatric inpatient hospitalization during the year preceding program entry. These criteria were selected and monitored to ensure that resource-intensive MHICM programs targeted veterans with the greatest need for intensive support and the greatest opportunity for VA cost savings. As in the original demonstration, the current overall population of MHICM veterans met target criteria defining veterans with serious mental illness who are high users of VA psychiatric resources. All program participants had a primary DSM-IV psychiatric diagnosis and 79% had been hospitalized for a month or more in the year preceding entry. One in five veterans (20%) was diagnosed with a co-morbid substance abuse disorder. System-wide declines in lengths of stay have reduced the proportion of veterans meeting utilization criteria. As a result, current MHICM veterans spent an average of 96 days (± 65 days) in the hospital in the year prior to entry, compared with 135 days $\{-29\%$ difference $\}$ for the 1997 Report (Rosenheck et al., 1997) and 144 days $\{-31\%\}$ for the original demonstration (Rosenheck and Neale, 1998a). The percentage of veterans entering the program directly from a VA psychiatric inpatient unit declined sharply (from 98% to 47%) after 1997. The number of veterans who met the 30-day hospital use criterion in the year prior to program entry also declined, from 91% to 79%.

Disability Status

Disability income data, presented by site in Table 2-9, reveal extensive VA and Social Security support for psychiatric disabilities among MHICM veterans at entry. More than half of MHICM veterans (N=1818 of 3189; 56.9%) reported receiving VA compensation for a service-connected disability. Of these, 1460 (45.8%) veterans were exclusively service-connected for a psychiatric disorder, 404 (12.7%) exclusively for a physical disability, and 182 (5.7%) for both. Another one in five (N=561, 17.6%) veterans reported receiving a non-service-connected disability pension. Many veterans also reported receiving Social Security income (SSI: 15.3%; SSDI: 48.1%). More than nine of ten MHICM veterans (N=3001; 94.1%) reported receiving some combination of VA and/or Social Security funds, and about half (50.3%) said their funds were handled by a designated representative payee. Separate examination of Veterans Equitable Resource Allocation (VERA) patient class data in FY 1998 indicated that many MHICM veterans were included in Complex Class reimbursement categories for serious mental illness. Although the percentage of MHICM veterans who received VA compensation for service-connected disorders ranged from 25% to 85% across sites, the proportion of veterans receiving some form of disability support was consistently high, from 83% to 100%.

Program Adherence to Entry Criteria

Overall, MHICM teams demonstrated substantial adherence to prescribed entry criteria, presented in **Table 2-10**, despite facility differences on specific variables. Most veterans (78.6% $\pm 22.3\%$) met the 30-day criterion for psychiatric hospital use in the year preceding entry. Expanding the criterion to include veterans with 3 or more stays in the previous year (as defined by VHA Directive 2000-034) increased that percentage to 91.0% ($\pm 11.5\%$). Expanding the list of psychotic diagnoses (schizophrenia, schizo-affective disorder, other psychosis) to include bipolar disorder increased the proportion of veterans meeting that entry criterion by a similar amount, from 79.0% ($\pm 14.9\%$) to 90.7% ($\pm 8.5\%$). One in five veterans (20.1% $\pm 12.4\%$) had a

secondary diagnosis of alcohol or drug abuse. Bedford, Albany and Houston greatly exceeded the national level by targeting veterans with co-occurring diagnoses of mental illness and substance abuse. While over half of MHICM veterans ($56.9\% \pm 20.3\%$) had received two or more years of inpatient psychiatric or substance abuse treatment, there was substantial Site variation (range: 12.9% to 89.4%). Characteristic of psychotic disorder onset in early adulthood, veterans reported histories of illness that typically spanned more than two decades since their first hospitalization (mean = 23.0 ± 3.9 years; range: 15.0 to 33.0 years).

Measures of clinical status at program entry, shown in **Table 2-11**, indicate levels of client symptoms and functional impairment commensurate with extensive hospitalization and long-term mental illness. More than half of MHICM veterans ($54.0\% \pm 13.0\%$) reported low-level instrumental functioning on at least one activity of daily life (managing household chores, shopping, finances, medications). Despite accommodations to inpatient life by many veterans prior to entry, clinician ratings of global functioning at program entry were low (GAF mean: 40.1 ± 5.2) and interviewer ratings of observed symptoms were relatively high (BPRS mean: 39.3 ± 7.4), reflecting mild to moderate psychiatric impairment. (Note: BPRS ratings were re-scored on a 1-Not Present to 7-Extremely Severe scale to conform with scoring guidelines and current reporting conventions.) For the first time, fewer than half ($47.0\% \pm 26.5\%$) of MHICM clients entered the program directly from an inpatient unit. More often, veterans had been discharged or were referred from an outpatient service. This was a sharp reduction from the first report when 98% of clients entered directly from the hospital, reflecting dramatic changes in psychiatric lengths of stay within VA over the past five years.

Program Process

Program Tenure

MHICM principles emphasize continuity, frequency, intensity, and community-based services for veterans with serious and persistent mental illnesses who have not responded well to traditional modes of treatment. With respect to continuity, MHICM programs are expected to serve as a fixed point of clinical responsibility for their veterans, offering services for at least one year and providing services for as long as clinically necessary. Continuity data in **Table 2-12** indicate that MHICM programs continue to meet this expectation. A relatively small percentage ($N=448$, 14.0%) of all MHICM veterans ($N=3,189$) were discharged during the twelve-month report period. An additional 96 veterans (3.0%) were formally transitioned to less intensive services by MHICM team staff, following criteria defined by VHA Directive 2000-034. Of those for whom services were terminated, 122 (27.2%) veterans left the area and 87 (19.2%) veterans died (83 from natural causes, 3 from self-inflicted injuries, and 1 from unknown causes). The rest of the discharged veterans asked to leave the program because they felt they no longer needed the services ($N=88$, 19.6%), formally graduated from the program ($N=18$, 4.0%), or for unspecified reasons ($N=121$, 27.0%). On average, veterans in the report sample (those with a follow-up interview between October 1, 2000 and September 30, 2001) had participated in the program for almost three years (mean= $1,065 \pm 415$ days) at the time of the latest follow-up interview.

Service Delivery and Alliance

Table 2-13 presents information provided by MHICM case managers through structured semi-annual case summaries on MHICM service delivery. These data support national program implementation according to principles that have been shown to result in positive outcome (Rosenheck and Neale, 1998a; McGrew et al., 1994). With respect to frequency of contact, 81.5% ($\pm 11.4\%$) of veterans were seen weekly or more and 47.4% ($\pm 16.7\%$) received telephone contacts on a weekly or more frequent basis. Regarding intensity of contact, 56.6% ($\pm 17.9\%$) of veterans were seen for more than an hour per week in the latest six-month period (after a mean of almost 3 years in the program). Pertaining to location of contact, 84.8% ($\pm 14.4\%$) of veterans received more than 60% of their care in the community. Compared with FY 2000 data, present values reflect small reductions in face-to-face (-3.8%) and community (-2.8%) contacts and larger reductions in telephone (20.2%) and weekly (15.1%) contacts (Neale et al., 2001).

An important aspect of MHICM treatment involves the volume of direct, or face-to-face, contact between staff and clients, recorded as clinic stops in VA's centralized outpatient database, the Outpatient Clinic or OPC File. MHICM teams record their workload under DSS Identifiers #552 (MHICM Community Visit) and #546 (MHICM Telephone Contact). Overall, as illustrated in **Table 2-14**, each MHICM client had an average of 61 (± 35.0) visits by MHICM staff in the twelve months preceding September 30, 2001, and another 5 (± 6.8) telephone contacts, for a cumulative national total of 212,415 visits. Adjusting visits to reflect the portion of the year that clients were enrolled in MHICM (mean = 92% \pm 7%) at each site amounts to about 66 (± 36.0) face-to-face visits over twelve months or 1.28 visits per week, per veteran. Including telephone contacts, each veteran received about 72 contacts, or 1.40 contacts per week, in FY 2000. This is below the program expectation of 2-3 contacts per veteran per week. Overall, visits per veteran declined 6% from FY 2000 and 19% from FY 1999 despite an increase in the proportion of the year (92%) that clients were enrolled in the program. The decline was widespread, with more than half (56%) of teams reducing client contacts compared with FY 2000. Asked to comment on these data, sites provided a variety of reasons, including: administrative pressure to increase caseloads; conversion to new workload reporting systems (DSS, CPRS); inappropriate credit of MHICM workload to another clinic or non-MHICM physician; exclusion of credit for visits while a veteran was an inpatient; and workload reporting changes related to VA Medical Care Cost Recovery from the Centers for Medicare and Medicaid Services (formerly HCFA).

Table 2-15 depicts the breadth of services provided by MHICM clinicians to program veterans during FY 2001. Most frequently, clients received supportive contact (97%), active monitoring (94%), medication management (81%), psychotherapeutic interventions (77%), and medical screening (72%). Less frequently, staff provided crisis intervention (65%), social or recreational activities (63%), rehabilitation services (48%) and housing support (45%). Substance abuse intervention (26%) was generally limited to veterans with specific needs related to dual diagnosis. Vocational support (19%) was the least used service with this severely disabled population. Relative to the pattern of services in FY 2000, there were notable increases in rehabilitation support (+33%) and social/recreational activities (+11%), and reductions in substance abuse services (-18%), housing support (-20%) and vocational support (-22%). At the same time, smaller teams (Table 2-5), higher caseloads (Table 2-6) and fewer client contacts (Table 2-14) were likely to have reduced the amount of time devoted by MHICM staff to client

recovery and rehabilitation services.

Clinical case management models stress the importance of the therapeutic relationship between case manager and client, based on frequent and individualized contact, for improving clinical status (Harris and Bergman, 1993; Kanter, 1989). On the basis of earlier retrospective evidence linking therapeutic alliance with MHICM outcomes (Neale and Rosenheck, 1995), case manager-client alliance was monitored at all dissemination sites using seven-item versions of the Working Alliance Inventory that had been modified to reflect case management work (Horvath and Greenberg, 1989). **Table 2-16** compares MHICM client perceptions of their alliance with MHICM case managers at six months (Alliance mean: 39.2 ± 3.2) to adjusted ratings of alliance with traditional inpatient/outpatient treaters at entry (Alliance mean: 35.8 ± 2.1). Overall, client ratings of alliance were almost 10% higher for MHICM staff than for traditional treaters, with veterans at 47 (98%) of 48 sites reporting higher levels of alliance with MHICM staff.

ACT Model Fidelity

Each MHICM team completed a measure of program fidelity to prescribed elements of assertive community treatment, the Dartmouth Assertive Community Treatment scale (DACTS; McGrew et al., 1994; Teague et al., 1998). The measure examines team conformity with ACT program criteria pertaining to human resources, organizational boundaries, service delivery, and substance abuse treatment. Previous research has found that fidelity scores, particularly team factors, correlate strongly with reductions in hospital use (McGrew et al., 1994), and distinguish between effective and ineffective treatment teams (Teague et al., 1995). Results for MHICM programs, displayed in **Table 2-17**, show that teams performed well on three of the four domains. The fourth domain of the scale pertains to substance abuse treatment, which is not a primary emphasis of MHICM treatment, and results vary significantly by team. Although secondary substance abuse diagnoses are present in 20-25% of MHICM veterans at entry, a primary substance abuse diagnosis is an exclusion criterion for most MHICM teams. The overall average DACTS score (mean = $4.0 \pm .3$) approximates those for other successful public sector ACT teams (Teague et al., 1998), despite including some teams that have shifted MHICM staff to other models of care. More than half (25 of 48, 52%) of MHICM teams achieved a score of 4.0 or more on the ACT Fidelity scale. [Note: VA scores include 23 of 26 original DACTS items. As a result, VA averages may be compared with non-VA programs but VA total scores are lower.]

Distance and Travel Time

For the semi-annual Clinical Progress Reports, MHICM clinicians estimated the distance and travel time between their offices and each veteran's residence. Follow-up reports indicated that most MHICM clients lived within 20 miles (N=1611, 65.2%) and 30 minutes (N=1650, 66.6%) of team offices (see **Figures 2-1 and 2-2**). Nevertheless, sizable numbers of veterans lived between 21 to 40 miles (N=543, 22.0%) and 30 to 60 minutes (N=685, 27.7%) away, and some lived more than 40 miles (N=317, 12.8%) and 1 hour (N=142, 5.7%) away. These data suggest that MHICM teams have substantially extended access to VA mental health services for veterans with serious mental illness through their outreach activities.

Clinical Outcomes

Reduction in VA Hospital Use

A primary objective of MHICM teams is to reduce veteran reliance on psychiatric inpatient services in favor of more adaptive and less costly treatment alternatives. As evident in **Table 2-18**, this objective was well met, with all teams but one showing pre- to post-entry reductions in mental health hospital days after six months. Two of the seven teams with the least impact on hospital days were based at outpatient clinics without immediately available hospital beds. On average, MHICM veterans (N=2807) reduced their VA psychiatric hospital use from 57.2 days pre-entry to 15.3 days post-entry (mean reduction = -42 ± 30.1 days) during their first six months in the program. Overall, hospital use reductions of the same magnitude (73%) were observed for periods of 12 months (**Table 2-18a**: N=2507, -69 days), 18 months (**Table 2-18b**: N=2112, -104 days), and 24 months (**Table 2-18c**: N=1859, -140 days)⁴. As in the original demonstration (Rosenheck and Neale, 1998a), NP teams continue to show greater reductions and cost savings relative to GM&S teams, although GM&S teams have been consistently effective in recent implementations.

One estimate of MHICM cost impact can be obtained by multiplying mean reduction in days by the number of veterans and again by the national average hospital per diem rate (FY 2001 inpatient psychiatry per diem = \$742) (Rosenheck and Greenberg, 2002). This method yields estimated overall cost reductions of \$87.2M for 2,807 veterans at 6 months and \$128.7M for 2,507 veterans at 12 months, unadjusted for inflation. Although some reduction in hospital use is certainly attributable to expected client improvements over time and course of illness and to system-wide reductions in hospital use, the data suggest substantial cost reductions for veterans with serious mental illness who receive MHICM services.

Improvement in Clinical Status

Consistent with the MHICM mission and objectives, monitored outcomes include improvements in health status, community functioning, and quality of life, as well as customer satisfaction. Outcome measures include ratings of:

- Symptoms by clinician: Brief Psychiatric Rating Scale {BPRS}, Overall and Gorham, 1962;
- Symptoms by client: Symptom Severity {GSI}, Derogatis and Spencer, 1982);
- Global functioning by clinician: Global Assessment of Functioning {GAF}, American Psychiatric Association, 1995, Endicott et al., 1976;
- Instrumental functioning by client: Instrumental Activities of Daily Living {IADL}, Fischer et al., 1996);
- Quality of life by client: Lehman Quality of Life Inventory {QOL}, Lehman, 1988);

⁴ Paired t-tests revealed overall reductions in VA mental health hospital days to be statistically significant at 6 months (N=2738, mean difference=-42.92, t=-38.26, p<0.0001), 12 months (N=2449, mean difference=-70.80, t=-33.00, p<0.0001), 18 months (N=2082, mean difference=-105.69, t=-30.64, p<0.0001), and 24 months (N=1835, mean difference=-141.38, t=-29.43, p<0.0001).

- Satisfaction with VA mental health {VAMHSAT} and MHICM services {MHICM SAT} by client.

For each outcome measure, scores at program entry were compared with scores for the latest 6-month follow-up period in the report window (October 1, 2000 to September 30, 2001).

Individual scores were adjusted for fifteen covariates including client characteristics, baseline values, and time in program. Median time in MHICM at that point was 35 months. These data are presented in Tables 2-19 to 2-25.

Case manager ratings of 18 observed symptoms (BPRS) for MHICM clients, summarized in **Table 2-19**, showed an overall reduction of 10.0% from entry (N=2805, mean sum: 39.3 ± 7.4) to follow-up (mean sum: 35.5 ± 11.9). Observed symptoms decreased at 35 of 47 sites (74%). Client ratings of severity for 30 symptoms on a 4-point scale (GSI: 1-not at all to 4-a great deal) (Fischer et al., 1996), presented in **Table 2-20**, yielded a comparable overall reduction of 10.1% from entry (N=2671, mean: 1.98 ± 0.2) to follow-up (mean: 1.79 ± 0.3), with lower 6-month ratings at all but five sites (89%).⁵

Reduction in Violent and Suicidal Behavior

MHICM veterans were asked whether they had thought or talked about harming someone, threatened anyone, or actually harmed anyone during their last 30 days in the community. Clients were also asked whether they had been arrested or had spent a night in jail, for any reason, during the six months preceding the interview. Entry and follow-up responses are presented in **Figure 2-3**. At entry, one in five veterans (N=490, 18.1%) reported thoughts of violence, one in eight (N=355, 13.1%) talked about hurting someone, one in ten (N=252, 9.2%) threatened someone, and one in twenty-five (N=103, 3.8%) committed a violent act. At follow-up, levels of violence were substantially lower across all categories, with thirty percent fewer veterans reporting violent thoughts (N=252, 12.6%), thirty-seven percent fewer veterans reporting violent talk (N=164, 8.2%) and about fifty percent fewer veterans reporting violent threats (N=93, 4.6%) or actions (N=42, 2.1%). The number of veterans reporting arrest (pre: N=257, 9.2%; post: N=61, 2.9%) or jail (pre: N=178, 6.4%; post: 43, 2.0%) also declined, by more than two thirds, at follow-up.

Using similar items, MHICM veterans were asked if they had thought or talked about harming or killing themselves, threatened or attempted suicide in their last 30 days in the community, and whether a suicide attempt had resulted in hospitalization for medical reasons (see **Figure 2-4**). Though one in four veterans (N=641, 23.5%) reported thinking about suicide prior to entry, and one in seven (N=373, 13.8%) had talked about it, fewer than one veteran in ten had threatened (N=199, 7.2%) or attempted (N=138, 5.0%) suicide. Of the latter, most (N=124, 89.8%) had been hospitalized for medical reasons. At follow-up (after about 35 months in the program), the number of veterans in all of these categories had declined substantially. Veterans were much less likely to report suicidal thought (N=211, 10.5%), talk (N=94, 4.7%), threat

⁵Paired t-tests yielded significant differences reflecting improvement in both observed (N=1982, mean difference: -3.89, t=-10.20, p<0.0001) and reported symptoms (N=1802, mean difference: -0.20, t=-12.63, p<0.0001).

(N=27, 1.3%), or attempt (N=7, 0.3%). All veterans who attempted suicide were hospitalized for medical reasons. It is worth noting here that over a one-year period, 3 (0.1%) of the 3189 veterans targeted in this report died from a completed suicide attempt. Another 83 veterans (2.6%) died from natural causes.

Global and Instrumental Functioning

Case manager ratings of client global functioning (GAF) are presented in **Table 2-21**. Adoption of the measure as a national performance monitor for VA mental health in 1998 prompted many facilities to re-train their staff in use of the measure, often resulting in a more conservative scoring range. As a result, follow-up scores were lower at about half the sites (24 of 47 sites, 51%) and overall means decreased by 1.2% from pre- (N=2810, mean: 40.1 ± 5.2) to follow-up (mean: 38.6, S.D.: 10.7), a statistically significant t-test difference (N=2220, mean difference: -1.27, $t=-4.78$, $p<0.0001$). This compared with higher follow-up scores (25 of 40, 63%; mean increase: 3.5%) over six months in the first MHICM report (Rosenheck et al., 1997).

Client ratings of performance frequency (1-almost never to 5-almost always) for twelve specific daily skills (IADL), presented in **Table 2-22**, improved slightly (+2.8%) from entry (N=2327, mean sum: 43.5 ± 3.6) to follow-up (mean sum: 45.1 ± 5.8). Three out of five teams (29 of 47, 62%) showed some level of improvement at follow-up and the overall t-test difference was statistically significant (N=1351, mean difference: 1.11, $t=4.18$, $p<0.0001$).

Enhanced Quality of Life and Independence

Client ratings on five life satisfaction items (QOL; Lehman, 1988) using a 7-point scale (1-terrible to 7-delighted), reported in **Table 2-23**, indicated improvement (10.2%) from entry (N=2653, mean sum: 25.9 ± 1.3) to follow-up (mean sum: 28.8 ± 2.2). Clients from 45 of 47 teams (96%) reported higher quality of life following MHICM entry⁶.

Veterans were asked to indicate the number of nights in their most recent month in the community that they had spent in any of five living situations: a) **independent** (alone or with spouse, family, or friend in apartment or house); b) **minimally restrictive** (supervised apartment, boarding home, adult foster care); c) **moderately restrictive** (halfway house, treatment program, acute psychiatric diversion facility, treatment lodge, domiciliary); d) **extremely restrictive** (psychiatric hospital, skilled nursing facility, jail, or prison); or e) **homeless** (homeless or emergency shelter). In the month preceding their index hospital stay (or program entry), large groups of MHICM veterans reported living in independent (N=1488, 53.2%), extremely restrictive (N=812, 29.1%), or minimally restrictive (N=645, 23.1%) residences (see **Figure 2-5**). Fewer veterans reported living in moderately restrictive (N=262, 9.4%) residences or having been homeless (N=97, 3.5%). At follow-up, the numbers of veterans who had been homeless (N=19, 0.9%) or in extremely restrictive residences (N=166, 7.8%) had declined by more than

⁶Paired t-test results for client ratings of quality of life (N=1819, mean difference: 2.65, $t=18.30$, $p<0.0001$), satisfaction with VA mental health services (multi-item: N=1642, mean difference: 1.21, $t=19.63$, $p<0.0001$); single item: N=1461, mean difference: 0.30, $t=8.63$, $p<0.0001$), and satisfaction with MHICM services (N=1735, mean difference: 0.63, $t=20.79$, $p<0.0001$) were all significantly positive.

seventy percent. Despite a slight decline in the number of veterans who reported living independently (N=1051, 49.5%), nineteen percent fewer reported living in moderately restrictive residence (N=162, 7.6%) and sixty-five percent more veterans reported living in minimally restrictive residences (N=811, 38.2%). These data reflect the fluidity of living arrangements for veterans with serious mental illness and the importance of housing in community-based services.

Using the items described above, a housing independence index was created to compare veteran-reported housing status before and after program entry. Client reported days spent at each level of housing independence were multiplied by a corresponding weight (Independent x 4, Minimally restrictive x 3, Moderately restrictive x 2, Extremely restrictive x 1, Homeless x 0). A comparison of client ratings, presented in **Table 2-23a**, revealed a statistically significant 14.2% gain in housing independence from pre- (N=2764, mean = 2.9 ± 0.5) to post-entry (mean = 3.3 ± 0.6) (N=1986, mean difference: 0.41, $t=14.37$, $p<0.0001$).

Work and Rehabilitation Activity

A minority of MHICM veterans (N=345 of 2817, 12.2%) reported full- or part-time employment in the three years before program entry. A smaller group (N=196, 7.0%) reported recent paid employment (see **Figure 2-6**) with an average of 1.0 day at entry and 1.1 days at follow-up. Fewer veterans reported work as volunteers (N=127, 4.6%) or participation in “work-for-pay” (N=112, 4.0%) or formal (N=65, 2.4%) vocational rehabilitation programs. Except for a slight increase in participation in “work-for-pay” rehabilitation programs (N=116, 5.5%), all indicators of employment and productive activity declined at follow-up, including veteran reports of paid employment (N=138, 6.5%), volunteer work (N=79, 3.7%), or formal rehabilitation (N=45, 2.2%). The relative poverty of vocational outcomes for MHICM teams may reflect: 1) the absence of team staff with vocational rehabilitation expertise; 2) severe levels of impairment among MHICM veterans; and/or 3) low incentive for work among MHICM clients who receive extensive VA and Social Security benefits for disability. Anecdotally, some MHICM staff reported that their clients were “too disabled” or “unmotivated” to work and were often refused admission by vocational rehabilitation services.

Enhanced Satisfaction with VA Mental Health Services

Client ratings of the overall quality of VA mental health services (VAMHSAT, 3 items), presented in **Table 2-24**, revealed a statistically significant 13.8% gain from pre- (N=2488, mean: 9.0 ± 0.8) to post-entry (mean sum: 10.2 ± 0.9). Single-item comparison between client satisfaction with MHICM and general VA mental health services using a 5-point scale (0-very dissatisfied to 5-very satisfied), summarized in **Table 2-25**, found program participants favoring MHICM (N=2566, mean: 3.1 ± 0.2) by about 20% over general services (mean: 3.7 ± 0.2). MHICM services, comprising the bulk of psychiatric care for most program clients, appeared to have had a positive influence on their overall satisfaction with VA mental health services, which rose 10.8% (Entry mean: 3.1 ± 1.1) during the first 6 months of program involvement.

Unit Costs

As its name suggests, Mental Health Intensive Case Management involves providing

highly intensive services to veterans who are among the most seriously ill and most expensive to treat in the VA system. The extent of care required by this group, and the setting where services are delivered, have prompted low recommended client-to staff levels that, in turn, contribute most heavily to personnel and program expenses. Using FY 2001 program expenditures and data from previously presented tables, **Table 2-26** outlines rough program costs for various units of service. For 3,189 veterans seen during FY 2001, MHICM services cost about \$5,777 per veteran per year, comparing favorably with original study data adjusted for inflation (Rosenheck, Neale, and Frisman, 1995). On the basis of filled positions (251.40 FTE) and FY 2001 personal service expenditures plus benefits (\$17.5M), the average annual cost per FTE is \$69,500. Adjusting total MHICM visits to reflect a full year of service for each veteran (a cumulative total of 212,415 visits per year), the cost per visit was about \$87. The latter is a sizeable (38%) increase over FY 2000 (\$63 per visit) that may reflect detailing of staff to other activities, reductions in client contact, recent changes in workload reporting, and new teams with incomplete caseloads.

Outlier Review

In FY 2000, MHICM teams were asked to review critical monitors and minimum standards where a value for their team was identified as an outlier (i.e., the team value failed to meet the minimum standard threshold, exceeded the site standard deviation in the undesired direction, or differed statistically from the median site in the undesired direction). Minimum standards were based on VHA Directive 2000-034 and critical monitor outliers were based on MHICM program guidelines and principles. For each outlier on a Critical Monitor or Minimum Standard, the team was asked to identify a reason for outlier status from among five options and to explain and address it. The Outlier Review request and form are included in **Appendix D**.

Outlier values are heavily outlined (or boxed) in report tables. Critical monitor outliers are summarized by site across monitoring domains in **Table 2-27** (Site Performance) and within domains in **Table 2-28** (Team Structure), **Table 2-29** (Client Characteristics), **Table 2-30** (Clinical Process), and **Table 2-31** (Client Outcome). Minimum standards outliers are summarized by site in **Table 2-32**. Team outlier review responses are summarized in **Table 2-33** (Outlier Review Summary) and briefly described here.

Only one team operating in FY 2001, Battle Creek, had no outlier values. Forty-seven teams accounted for 147 negative outliers, an increase of 35% over the 109 outliers in FY 2000. Thirteen teams (28%) had five or more outliers, almost a three-fold increase over the 5 teams in FY 2000. In order of frequency, outlier review responses from 47 teams indicated: (C) Problems in program implementation for which corrective action had been taken (Sites: 23 or 49% of responding sites; Responses: 50 or 34% of total outliers); (A) Legitimate team differences that did not conflict with national program goals (Sites: 17 or 36%; Responses: 33 or 22%); (B) Local policies that conflicted with national program goals (Sites: 17 or 36%; Responses: 27 or 18%); (D) Problems in program implementation for which corrective action was planned (Sites: 16 or 34%; Responses: 28 or 19%); and (E) Implementation problems for which no corrective action was planned (Sites 7 or 15%; Responses: 9 or 6%).

By domain, Team Structure outliers were most common (67 outliers at 40 sites), followed by Clinical Process (58 outliers, 34 sites), Clinical Outcome (21 outliers, 15 sites), and Client

Characteristics (7 outliers at 7 sites). By monitor, outliers were most common for Team Size (24), Unfilled FTE (20), Face-to-Face (19) and Intense Contact (17), Caseload Size (16), Client Discharge (12) and Observed Symptoms (11), and least likely for Psychotic Diagnosis (0), Reported Symptoms (1), Global Functioning (2), Location of Services (3) and Quality of Life (3). These results corroborate team reports of problems maintaining staff resources to provide intensive services for veterans with serious mental illness and needs for additional training in community-based rehabilitation.

Adherence to Minimum Standards

VHA Directive 2000-034 established procedural guidelines for MHICM teams that were operationalized in eight **minimum program standards**. Outliers for MHICM minimum program standards (see page 16) are presented by site in Table 2-32 and reviewed here. Adherence was good or excellent (85 percent or better) for four standards and fair or poor (50 to 75 percent) for four others. Among standards with a higher adherence rate, all forty-eight teams (100%) reported that the majority of veterans they treated (Mean: 91%; Range: 62% to 100%) had psychiatric diagnoses that included psychosis (i.e., schizophrenia, schizo-affective or bipolar disorder, other psychosis). Forty-five teams (94%) indicated that the majority of their clients (Mean: 85%; Range: 35% to 100%) received most MHICM clinical services in community settings. Similarly, forty-three teams (90%) indicated that a majority of their clients (Mean: 79%; Range: 15% to 100%) had 30 or more psychiatric inpatient hospital days in the year preceding program admission. Forty-one teams (85%) reported providing rehabilitation services (e.g., client skills training) to at least one quarter of their clients (Mean: 48%; Range: 7 to 89%).

Among standards with a lower adherence rate, thirty-five teams (72%) met the criterion of discharging fewer than 20 percent of their clients per year (Mean: 14%; Range: 2 to 28%). Thirty-two teams (67%) maintained client to staff ratios between 7:1 and 15:1 (Mean: 13.2; Range: 7.3-19.3). Twenty-nine teams (60%) had at least weekly face-to-face contact with their clients (Mean: 1.3; Range: 0.51 to 4.7). Twenty-four teams (50%) had 4 or more clinical FTEE available to provide community-based services (Mean: 4.35; Range: 1.5 to 9.5 FTEE). Non-adherence to the latter standards appeared to be a consequence of eroding staff resources. For example, 16 of the 24 teams that did not meet the staffing standard had been funded initially with four or more case manager positions but had lost positions over the years when staff were detailed to other units, not replaced, or hiring was frozen. Largely as a result of these staff losses, only seven of forty-eight MHICM teams (15%) met all eight minimum program standards in FY 2001.

Transition to Lower Intensity Case Management Services

VHA Directive 2000-034 (Appendix E) defined a procedure for transitioning MHICM clients to lower intensity services. Teams may begin to assess client readiness for a lower level of care, after one year of MHICM services, using five criteria: “clinically stable, not abusing addictive substances, not relying on extensive inpatient or emergency services, capable of maintaining themselves in a community living situation, and independently participating in necessary treatments”. Clients who meet all criteria may be transitioned to less intensive MHICM

services or to standard clinical services.

As mandated by the Directive, NEPEC began monitoring client transition to lower intensity services during FY 2000. In FY 2001, 96 MHICM veterans (3% of 3,189) at nine facilities were transitioned to less intensive services: 69% to lower intensity MHICM services, 22% to low intensity services elsewhere, and 5% discharged without additional services. Three veterans were later restored to regular MHICM services because of real or imminent risk to themselves or others. When they were transferred, 81% of veterans were assessed as clinically stable; 76% as not abusing addictive substances; 77% as not relying on extensive inpatient or emergency services; 71% as capable of maintaining themselves in a community living situation; and 66% as independently participating in necessary treatments. These data indicate that up to one-third of transitioned veterans did not meet VHA Directive 2000-034 criteria, though the majority continued to receive low intensity services from the MHICM team. Transitioned veterans continued to receive a range of clinical services, including case management (72%), day treatment (20%), outpatient mental health therapy (57%), outpatient medication management (71%), substance abuse services (7%), residential services (21%), vocational services (12%), inpatient care (9%), or nursing home care (7%). Site-by site data on transition criteria and services will be included in the FY 2002 report.

MHICM workload is recorded in VA outpatient databases under DSS Identifier or Stop Code 552. Non-MHICM case management services (typically low intensity) are reported under identifier 564. FY 2001 workload data for MHICM veterans are summarized in **Appendix E** (see also Table 2-14) and for non-MHICM veterans in **Appendix F. MHICM veterans** (N=3,026) received 186,791 high intensity MHICM visits in FY 2001, an average of 62 visits per veteran (Appendix E). These represented 99% of their total case management services since few MHICM veterans (N=168) received general case management services (1,289). A large number of **Non-MHICM veterans** (N=5,751) were credited with MHICM visits, typically at facilities with MHICM teams. Contacts for these veterans (39,836) made up a smaller portion (57%) of total case management services and averaged only 7 visits per veteran. These veterans were presumably seen in assessment or screening visits. Only veterans who are fully enrolled in the performance monitoring system are considered MHICM participants under VHA Directive 2000-034. A substantial group of non-MHICM veterans (N=2,692) received general case management services (29,484), an average of 11 visits per veteran. Most of these contacts were reported by facilities without a MHICM team.

Summary and Conclusions:

Development of Mental Health Intensive Case Management programs in VA has followed a model sequence of problem identification, program development, evaluation, and dissemination (Rosenheck, 2001). Modeled on evidence-based, “best practice” programs in widespread use elsewhere in the nation (Rosenheck and Neale, 2001; Phillips et al., 2001), the MHICM program is a well-defined intervention that meets local needs within its broad operational parameters. A rigorous study demonstrated the program’s cost-effectiveness and long-term benefits in VA settings, as well as the need for training and monitoring to assure proper implementation. Both VA and non-VA studies show program benefits are not likely to be attained unless team operation is carefully monitored (Mueser et al., 1998). MHICM has been successfully

implemented at more than 50 VA healthcare systems and site-by-site performance monitoring data show the program continues to provide effective and efficient services to deserving veterans in great need. Review of outliers and team reports continue to underscore the importance of attention to team and caseload size and staff training. A network planning initiative and quarterly circulation of monitoring data to network leaders, begun in FY 2001, may enhance the implementation and performance of MHICM teams nationwide.

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